

Staffing and facilities in cardiology in the United Kingdom 1984

Third biennial survey

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The cardiology committee of the Royal College of Physicians of London and the council of the British Cardiac Society have previously published surveys of staffing^{1 2} and facilities² in cardiology in England and Wales relating to 1979 and 1982. In this report we present comparable data collected from health districts in England and Wales with an index date of 1 July 1984. We also have information provided by colleagues in Scotland and Northern Ireland. The purpose of the surveys is to obtain accurate information for the specialty on the number of consultant posts and the prospects for senior registrars, and also to monitor the deficiencies in the provision of services within many health districts.

Methods of inquiry

As in previous surveys, a cardiologist in each health region of England and Wales was sent a list of districts in his locality and asked to suggest either one or two physicians in each who might be willing to act as respondents by completing a questionnaire. Contacts were also made with physicians in the health boards of Scotland, the health and social service area boards of Northern Ireland, and the independent special health authorities in London (National Heart and Chest Hospitals and Great Ormond Street Hospital).

The questionnaire comprised 20 sections relating to consultant staff, senior registrars, technical staff, referral patterns, facilities, and equipment. We distinguished between cardiovascular physicians who spend virtually all of their professional time engaged in cardiology and those who have additional responsibilities in general medicine. Three criteria were required for inclusion in the latter group: a special interest in cardiology, appropriate training in

the specialty, and at least 40% of professional time devoted to it. We recognise that many other physicians, unable to meet all three criteria, provide important services to those with heart disease; however, they have not been included in the study.

Some questionnaires were returned promptly, but where necessary second and third documents were sent with reminders. Telephone contact was made with the few health districts from which no written information could be obtained. After the data had been entered on to the computer a printout of the information received from each health district was returned to the respondent for checking. Subsequently the results were assembled by region or other appropriate groups and submitted under confidential cover to our regional advisors for scrutiny as a guard against inadvertent errors. On this occasion there were few disagreements on fact, and all were readily resolved by further consultation. Finally, discrepancies with previous inquiries at district level were identified and referred for final checks.

The data for England and Wales have been refined by sequential investigation over seven years (1977 to 1985) and must be substantially accurate. We are less confident about some details from Scotland and Northern Ireland: full information has been sought on only one occasion and therefore we have had less opportunity for identifying inconsistencies. We do not underestimate our respondents' difficulties in completing complex forms under pressure from many competing priorities. That our survey is complete is a testimony to the high level of cooperation we have received throughout the entire period of the survey.

Compared with our previous publication,² a few differences in format have been adopted for the tables, which contain the principal results of the inquiry. The most important modification concerns the designation of cardiologists as engaging in adult

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Table 1 *Number of cardiovascular physicians in post (at 1 July 1984) for each health region in England and Wales. (Data in parentheses refer to 1982 figures)*

Region and population	No of health districts	Major centres	Physicians Full time cardiology		Physicians Major interest		No of physicians engaged in cardiology
			Adult	Paediatric	Adult	Paediatric	
East Anglia (1 939 600)	8	1	3	0	3	0	6
Mersey (2 428 100)	10	1	4	2	2	1	9
Northern (3 093 100)	16	1	6	2	11	0	19
North East Thames (3 738 400)	16	3	12	0	10	1	23
North West Thames (3 471 000)	15	4	11	2	9	1	23
North Western (3 996 700)	19	3	9	1	11	1	22
Oxford (2 405 400)	8	1	3	1	6	1	11
South East Thames (3 595 300)	15	4	13	3	10	0	26
South West Thames (2 953 800)	13	1	5	0	4	0	9
South Western (3 125 100)	11	1	2	2	9	0	13
Trent (4 610 600)	12	2	5	1	13	1	20
Wessex (2 824 400)	10	1	2	2	7	0	11
West Midlands (5 176 000)	22	3	11	2	9	0	22
Yorkshire (3 598 900)	17	3	7	3	9	0	19
Wales (2 807 200)	9*	1	4	0	8	0	12
National Heart and Chest Hospitals and Great Ormond Street Hospital	5†	4	14‡	8	0	0	22
Totals	206 (206)	34 (34)	111 (111)	29 (18)	121 (117)	6 (4)	267 (250)

*Wales has nine health districts and 18 district general hospitals.

†The National Heart and Chest Hospitals and Great Ormond Street Hospital do not comprise a region with districts. They are administered separately as independent special health authorities.

‡Two additional posts were created but two others have been re-designated as paediatric cardiology.

or paediatric practice. Previously we had a column for those claiming both skills. This has been abandoned partly in recognition of the tighter delineation of paediatric cardiology as a subspecialty, but also because of the apparently random movement of individuals into and out of the "both" column that represents a category lacking an adequate definition. We accept that most cardiologists in adult practice see some children with congenital heart disease, and that this requires no special statement. To permit comparisons between the 1982 and 1984 data the earlier figures adjusted to the 1984 format are shown in parentheses wherever it seems relevant to do so. The inquiry on facilities has been broadened to include percutaneous transluminal angioplasty, the

one major advance in cardiology that has been developed between the two surveys.

Detailed information compiled under individual health districts has not been published but can be made available to those with a legitimate interest in the provision of cardiological services. Some information, notably names of individual consultants and senior registrars, with associated retirement or contract expiry date, is regarded as confidential and will not be divulged except as composite data in tables.

Comment

The second survey introduced data on technical staffing and facilities for England and Wales, infor-

Table 2 *Number of cardiovascular physicians in health boards of Scotland at 1 July 1984. (Data in parentheses refer to 1982 figures)*

Health boards and population	Major centres	Physicians Full time cardiology		Physicians Major interest		No of physicians engaged in cardiology
		Adult	Paediatric	Adult	Paediatric	
Grampian (497 272)	1	1	0	2	0	3
Highland (197 208)	0	0	0	1	0	1
Orkney (19 134)	0	0	0	0	0	0
Shetland (23 351)	0	0	0	0	0	0
Tayside (394 415)	0	1	0	2	0	3
Greater Glasgow (979 059)	2	7	2	9	1	19
Ayrshire and Arran (375 776)	0	0	0	3	0	3
Argyll and Clyde (447 951)	0	0	0	0	0	0
Lothian (744 558)	1	6	2	2	0	10
Borders (101 278)	0	0	0	0	0	0
Fife (344 488)	0	0	0	1	0	1
Forth Valley (272 792)	0	0	0	0	0	0
Lanark (570 636)	0	—	—	2	—	2
Western Isles (314 456)	0	0	0	0	0	0
Total	4	15 (15)	4 (1)	22 (22)	1 (2)	42 (40)

Table 3 Number of cardiovascular physicians in post in Northern Ireland at 1 July 1984. (Data in parentheses refer to 1982 figures)

Health and social service boards and population	No of units of management	Major centres	Physicians Full time cardiology		Physicians Major interest		No of physicians engaged in cardiology
			Adult	Paediatric	Adult	Paediatric	
Northern (381 100)	4	—	0	0	3	0	3
Southern (286 600)	3	—	2	0	2	0	4
Western (261 200)	3	—	0	0	2	0	2
Eastern (649 600)	14	1	11	1	0	0	12
Total	24	1	13 (11)	1 (1)	7 (6)	0 (0)	21 (18)

mation that was not obtained from our first questionnaire. This third survey is even broader: we have attempted to collect comprehensive information for the whole of the United Kingdom. The increasing complexity of the inquiry has been associated with problems in data collection and analysis that make early publication difficult to achieve. We hope, however, that any future biennial or triennial surveys will be completed more readily by following a pattern that is now reasonably well established.

Tables 1, 2, and 3 show the number of cardiovascular physicians in each region of England and Wales, in each health board in Scotland, and in each health and social service area board in Northern Ireland. As explained in the Methods, these tables are not directly comparable with those published previously because the column for cardiologists claiming skills in both adult and paediatric practice has been eliminated; all individuals have been classified into one of the two principal divisions of the specialty. Comparisons can be made, however, in the line showing totals for each of the remaining categories: numbers from the 1982 survey (adjusted to the 1984 format) are shown in parentheses. For England and Wales (Table 1) a modest improvement has been made in the number of cardiologists in adult prac-

tice. Two new posts in full time cardiology are not reflected in the table because two others have been re-designated as paediatric cardiology. There is a net increase of four posts for those with a major interest (representing six gains and two losses). The major expansion, however, has come in nine new posts in paediatric cardiology; there are also two apparent additions that result only from errors of designation in our last survey. We have attempted similar comparisons for Scotland (Table 2) and for Northern Ireland (Table 3) and we believe them to be substantially accurate. Five new posts appear in these tables (a net gain of two in paediatric cardiology). Thus for the whole United Kingdom we have the following net increases in posts: full time adult cardiology, four; full time paediatric cardiology, 12; major interest adult cardiology, five; major interest paediatric cardiology, one; overall total, 22.

The numbers of physicians engaged full time in cardiology in England and Wales in this survey is now 140 (adult plus paediatric). The figure published for 1984 by the Department of Health and Social Security is close to this at 135.³ The reason for the small discrepancy does not lie with our earlier index date (July compared with September 1984), but probably with differences in designation

Table 4 Number of retirements expected each year for cardiovascular physicians in post in England and Wales at 1 July 1984

Year	Full time cardiology			Major interest cardiology			Grand total
	A	P	Total	A	P	Total	
1984	3	0	3	0	0	0	3
1985	3	1	4	2	1	3	7
1986	6	1	7	3	1	4	11
1987	2	0	2	3	0	3	5
1988	5	0	5	4	0	4	9
1989	4	1	5	1	0	1	6
1990	3	0	3	2	0	2	5
1991	5	0	5	2	0	2	7
1992	1	0	1	5	0	5	6
1993	2	0	2	1	0	1	3
1994	1	0	1	3	0	3	4
1995	4	1	5	1	1	2	7
1996	3	1	4	2	0	2	6
1997	3	0	3	1	0	1	4
1998	6	1	7	4	0	4	11
1999	2	1	3	11	0	11	14
2000+	58	22	80	76	3	79	159
Total	111	29	140	121	6	127	267

A, adult; P, paediatric.

Table 5 *Number of retirements expected each year for cardiovascular physicians in post at 1 July 1984 in Scotland*

Year	Full time cardiology			Major interest cardiology			Grand total
	A	P	Total	A	P	Total	
1984	0	0	0	1	0	1	1
1985	3	0	3	1	0	1	4
1986	0	0	0	1	0	1	1
1987	0	0	0	1	0	1	1
1989	1	0	1	0	0	0	1
1990	2	0	2	1	1	2	4
1993	0	0	0	1	0	1	1
1994	0	0	0	1	0	1	1
1995	1	0	1	0	0	0	1
1998	1	0	1	1	0	1	2
1999	0	1	1	0	0	0	1
2000 +	7	3	10	14	0	14	24
Total	15	4	19	22	1	23	42

A, adult; P, paediatric.

Table 6 *Number of retirements expected each year for cardiovascular physicians in post in Northern Ireland at 1 July 1984*

Year	Full time cardiology			Major interest cardiology			Grand total
	A	P	Total	A	P	Total	
1986	0	0	0	1	0	1	1
1992	1	0	1	0	0	0	1
1997	1	0	1	0	0	0	1
1998	2	0	2	0	0	0	2
2000 +	9	1	10	6	0	6	16
Total	13	1	14	7	0	7	21

A, adult; P, paediatric.

of physicians as full time in cardiology or with a major interest in the specialty. Designation may become increasingly arbitrary and consistency more difficult to attain with the new emphasis on a spectrum of activity rather than polarisation between the old type A and type B categorisation. Inclusion of the whole spectrum of cardiologists who have special training and expertise does seem the more realistic approach. The numbers have now reached 267 in this survey.

Tables 4, 5, and 6 show the expected retirement dates of consultant cardiologists for respectively, England and Wales, Scotland, and Northern Ireland. We have data both by assuming retirement at age 65 and by taking account of stated intentions to retire early. Neither method will accurately foretell future events, but as in the last survey we have published intended dates as being the better approximation. Though some intentions have been modified, the pattern for England and Wales is broadly similar to that in our previous publication. Both show 38 impending retirements for the five years 1985–89, with only two minor adjustments which do not affect overall figures. Opportunities for senior registrars from retirements alone do not increase until 1998 when the pattern changes markedly: a large turnover of posts continues from then until 2013 at least, well beyond the scope of the published tables (full details can be supplied on re-

quest). From 1998 most of the vacancies will be in posts designated as having a major interest in cardiology, whereas posts requiring exclusive time in cardiology are slightly more numerous until that date. The numbers for Scotland and Northern Ireland are too small for trends to be identified.

Table 7 shows the number of health districts without cardiologists as defined for this survey. Wales cannot be considered in the same way as England because it has twice as many major district hospitals as health districts. For better comparability, hospitals rather than districts have been counted for the Principality as in our previous publication. Eight districts in England or district hospitals in Wales that were without cardiologists in 1982 had one in post by 1984, but two others lost them. The net gain was therefore six within the 63 previously without cardiologists. If Wales is excluded because the health authorities are not strictly comparable with those of England, there was a gain of five new posts within the 52 health districts previously without local cardiological expertise. The populations within the health districts still without cardiologists total 9.3 million excluding Wales, and 10.7 with it. This represents only a small improvement in the overall 1982 figure of 11.7 million. In addition nine other health districts have five or less cardiology sessions per week. Within the totals it can be seen that the North East Thames

Table 7 Number of health districts and population without cardiovascular physicians working full time in specialty or with a major interest as defined for the survey at 1 July 1984. (Data in parentheses refer to 1982 in figures)

Region and population	No of health districts in region	No of health districts without cardiovascular physicians	Total health district population not served by cardiovascular physicians
East Anglia (1 939 600)	8	4 (+1)	905 900
Mersey (2 428 100)	10	7	1 510 000
Northern (3 093 100)	16	5 (-2)	860 800
North East Thames (3 738 400)	16	—	—
North West Thames (3 471 000)	15	3	701 700
North Western (3 996 700)	19	5 (+1)	861 300
Oxford (2 405 400)	8	2	522 300
South East Thames (3 595 300)	15	1 (-2)	218 400
South West Thames (2 953 800)	13	4 (-1)	855 900
South Western (3 125 100)	11	1	206 400
Trent (4 610 600)	12	3	748 300
Wessex (2 824 400)	10	3	651 000
West Midlands (5 176 000)	22	4 (-2)	655 800
Yorkshire (3 598 900)	17	5	808 000
Wales (2 807 200)	9/18*	10 (-1)	1 152 200
National Heart and Chest Hospitals and Great Ormond Street Hospital	5†	—	10 658 000
Totals	206 (215)	57 (63)	9 264 500

*Wales has nine health districts and 18 district general hospitals. The populations served by these hospitals are estimates.

†The National Heart and Chest Hospitals and Great Ormond Street Hospital do not comprise a region with districts. They are administered separately as independent special health authorities.

Table 8 Health boards and population in Scotland, without cardiovascular physicians working full time in specialty or with a major interest as defined for the survey, at 1 July 1984

Health boards without cardiovascular physicians	Health board population not served by cardiovascular physicians
Argyll and Clyde	447 951
Borders	101 278
Forth Valley	272 792
Orkney	19 134
Shetland	23 351
Western Isles	314 456
Total 6 (6)	1 178 962

Region is alone in having a cardiologist within each district hospital, with South East Thames and South Western near to this ideal. Mersey and Wales can be cited as particularly poorly endowed, accounting between them for nearly a third of the population not served by cardiologists. Data comparable to that in Tables 8 and 9 were not available for our last survey. These show that nine administrative areas within Scotland and Northern Ireland are without

cardiologists. The population in these areas added to that in England and Wales makes a total of 12.3 million for the United Kingdom, though a recent joint report from the Royal College of Physicians of London and the Royal College of Surgeons of England recommends that every district general hospital should have at least one physician with special training in cardiology.⁴

Other special committees have addressed the needs within their own fields. For example, committees of the College of Physicians of London on gastroenterology⁵ and on thoracic medicine⁶ have both recommended that at least one physician within each district hospital should be trained in their respective disciplines. Both have suggested one specialist per 150 000 population so that larger district hospitals should have two. Cardiologists (with their colleagues in general medicine) face the heaviest burden of community mortality and morbidity within their sphere of expertise and have much of proven value in treatment to offer. It is also our contention that the larger district hospitals should even-

Table 9 Health and social service boards without cardiovascular physicians working full time in specialty or with a major interest as defined for the survey in Northern Ireland at 1 July 1984

Health and social service board	No of units of management	No of units without cardiovascular physicians	Total unit of management population not served by cardiovascular physicians
Northern (381 100)	4	1	63 700
Southern (286 600)	3	0	—
Western (261 200)	3	1	162 800
Eastern (649 600)	14	4	143 600*
Totals	24	6	370 100*

Some units of management without cardiovascular physicians do have visits from nearby cardiac centres.

*Population figures are not available from Northern Ireland for two units of management and so not included in these figures.

Table 10 *Senior registrars: contract expiry dates, type of appointment, and career intentions in England and Wales at 1 July 1984*

Year	Number	Type of appointment			Career intentions				
		NHS	Academic	Other	WT	MI	GM	CA	UD
1984	4	3	1	0	3	1	0	0	0
1985	17	8	4	3	10	3	0	3	1
1986	6	6	0	0	5	1	0	0	0
1987	7	4	3	0	7	0	0	0	0
1988	9	8	1	0	6	2	0	1	0
No expiry dates	13	5	7	1	11	2	0	0	0
Total	56*	34	16	4	42	9	0	4	1

WT, whole time cardiology; MI, major interest cardiology; GM, general medicine (no special interest in cardiology); CA, career abroad; UD, undecided.

*There is no information available about the type of appointment held by two of 56 senior registrars or equivalents.

Ten of the 56 senior registrars have already had their contracts renewed; one of these is now listed as having no contract expiry date although on a National Health Service contract; a further two, also on National Health Service contracts, are listed as having expired contracts.

Table 11 *Senior registrars: contract expiry dates, type of appointment, and career intentions in Scotland at 1 July 1984*

Year	Number	Type of appointment			Career intentions				
		NHS	Academic	Other	WT	MI	GM	CA	UD
1984	1	1	0	0	0	1	0	0	0
1986	4	1	3	0	2	2	0	0	0
1987	2	1	1	0	2	0	0	0	0
1988	2	2	0	0	1	0	0	0	1
Total	9	5	4	0	5	3	0	0	1

WT, whole time cardiology; MI, major interest cardiology; GM, general medicine (no special interest in cardiology); CA, career abroad; UD, undecided.

Table 12 *Senior registrars: contract expiry dates, type of appointment, and career intentions in Northern Ireland at 1 July 1984*

Year	Number	Type of appointment			Career intentions				
		NHS	Academic	Other	WT	MI	GM	CA	UD
1984	1	1	0	0	0	0	0	0	1
1985	6	5*	0	0	2	2	1	1	0
1986	1	1	0	0	0	0	1	0	0
1987	1	1	0	0	0	0	1	0	0
Total	9	8*	0	0	2	2	3	1	1

WT, whole time cardiology; MI, major interest cardiology; GM, general medicine (no special interest in cardiology); CA, career abroad; UD, undecided.

*No information available about type of appointment held by one of the senior registrars.

tually have two consultants trained in the specialty if a reasonably comprehensive service is to be offered to the community. While the consultant staffing levels within most district hospitals cannot at present support the recommendations of all specialist committees, implementation or part implementation of the Short report⁷ would make these aims feasible.

Tables 10, 11, and 12 show the details of senior registrars in post in the United Kingdom. In England and Wales the number has fallen between our last three surveys from 71 to 63 to 56. Since the 1982 survey four academic posts and three other honorary contracts have also been lost or temporarily frozen. The career intention of the registrars is overwhelmingly to practice cardiology exclusively, though many must know that this is unrealistic.

Both Scotland and Northern Ireland have nine senior registrars, but we have no comparable data for 1982.

Table 13 shows the distribution of consultants and senior registrars between regions. This continues to be very uneven, for example there are 10 senior registrars in North West Thames and eight in North East Thames compared with none in Wessex and one in East Anglia (East Anglia was shown as having two in the previous survey but this was an error of designation—no change has occurred). The relatively high numbers within the four Thames regions—23 or over 30% of all in the United Kingdom—reflects the preponderance of teaching hospitals and major cardiac centres in the metropolitan regions. The ratio of consultants to senior registrars should, however, be relatively constant.

Table 13 Number of full time cardiovascular physicians and senior registrars in post in each region in England and Wales at 1 July 1984. (Data in parentheses refer to 1982 figures)

Region	No of health districts	Full time physicians cardiology	Physicians major interest	Senior registrars
East Anglia	8	3	3	1
Mersey	10	6	3	3
Northern	16	8	11	3
North East Thames	16	12	11	8
North West Thames	15	13	10	10
North Western	19	10	12	2
Oxford	8	4	7	3
South East Thames	15	16	10	3
South West Thames	13	5	4	2
South Western	11	4	9	2
Trent	12	6	14	3
Wessex	10	4	7	0
West Midlands	22	13	9	3
Yorkshire	17	10	9	5
Wales	9/18*	4	8	2
National Heart and Chest Hospitals and Great Ormond Street Hospital	5†	22	0	6
Total	206 (215)	140 (129)	127 (121)	56 (63)

*Wales has nine health districts and 18 district general hospitals; the figure in brackets refers to district general hospitals.

†The National Heart and Chest Hospitals and Great Ormond Street Hospital do not comprise a region with districts. They are administered separately as independent special health authorities.

Table 14 Comparison between senior registrars' contract expiry dates and cardiovascular physicians' retirement dates in England and Wales at 1 July 1984

Year	No of contracts expiring	No of retirements expected	Balance
1984	4	3	(-1)
1985	17	7	(-10)
1986	6	11	(+5)
1987	7	5	(-2)
1988	9	9	(0)
No expiry dates	13	—	(-13)
Total	56	35	(-21)

Table 15 Comparison between senior registrars' contract expiry dates and cardiovascular physicians' retirement dates in Scotland at 1 July 1984

Year	No of contracts expiring	No of retirements expected	Balance
1984	1	1	—
1985	0	4	+4
1986	4	1	-3
1987	2	1	-1
1988	2	0	-2
Total	9	7	-2

Table 16 Comparison between senior registrars' contract expiry dates and cardiovascular physicians' retiring in Northern Ireland at 1 July 1984

Year	No of contracts expiring	No of retirements expected	Balance
1984	1	0	-1
1985	6	0	-6
1986	1	1	—
1987	1	0	-1
Total	9	1	-8

To allow for the differences in tenure of the two groups, one senior registrar post is needed for every seven consultant posts if a balance is to be maintained. In England, eight regions have a satisfactory ratio, as does Wales. But Mersey and North East Thames have twice this ratio (with Yorkshire and

Oxford close to twice) while North West Thames has three times the desirable ratio. The figure is also too high at the postgraduate teaching hospitals, but it may be argued these have unusual facilities and responsibilities for training. The situation is very unsatisfactory in Northern Ireland which has nine

Table 17 *Technical support in health regions in England and Wales at 1 July 1984. (Data in parentheses refer to 1982 figures)*

Region and population	Physiological measurement technicians				Cardiographers
	Qualified	Students	Total	per 100 000	
East Anglia (1 939 600)	14.5	5.0	19.5	1.01	20.9
Mersey (2 428 100)	65.2	18.0	83.2	3.43	0.2
Northern (3 093 100)	32.5	6.0	38.5	1.24	37.4
North East Thames (3 738 400)	53.1	14.0	67.1	1.79	29.7
North West Thames (3 471 000)	28.0	19.0	47.0	1.35	34.9
North Western (3 996 700)	83.0	14.0	97.0	2.43	18.6
Oxford (2 405 400)	10.9	2.0	12.9	0.54	20.4
South East Thames (3 595 300)	40.6	10.0	50.6	1.41	50.5
South West Thames (2 953 800)	21.0	6.0	27.0	0.91	17.8
South Western (3 125 100)	31.5	2.0	33.5	1.07	28.5
Trent (4 610 600)	81.6	22.0	103.6	2.25	43.5
Wessex (2 824 400)	15.8	5.0	20.8	0.74	27.7
West Midlands (5 176 000)	81.1	7.0	88.1	1.70	35.3
Yorkshire (3 598 900)	64.5	8.0	72.5	2.01	30.7
Wales (2 807 200)	65.2	18.5	83.7	2.97	34.0
National Heart and Chest Hospitals and Great Ormond Street Hospital	42.5	9.0	51.5	0.00	2.5
	731.0 (628.3)	165.5 (179.3)	896.5 (807.6)		432.6 (468.8)

senior registrars and 21 physicians with a major commitment to cardiology (as defined in this document). The regional disparities of course mask other anomalies within individual centres.

The balance between the senior registrars contract expiry dates and cardiovascular physicians retirement dates (Tables 14, 15, and 16) is of interest though the figures must be interpreted with caution. In the five years from 1984 to 1988 a deficit of 21 posts is shown compared with a deficit of 28 over four years shown in the 1982 survey. The change is a result of a combination of circumstances: on the one hand there are fewer senior registrars and equivalents in post and on the other hand new appointments have absorbed some of the backlog.

The Department of Health and Social Security, the Joint Consultants Committee, and the British Medical Association long ago recommended that consultant posts should grow at 4% per annum and junior posts at 2.5%.⁸ The consultant growth in specialised cardiology from 1979 to 1984 was 5% per annum.³ Thus the average surplus now shown, four per year for England and Wales over the whole spectrum of cardiology, might reasonably expect to be absorbed into new appointments and unexpected vacancies, and we believe these have continued to appear since the index date of the present survey. The calculation depends upon senior registrars being in post an average of four years, which is broadly the recent pattern. But the position is complicated by varying

Table 18 *Summary of facilities in regions in England and Wales at 1 July 1984. (Data in parentheses refer to 1982 figures)*

Region and population	No of health districts	Cardiac surgery	Haemodynamic investigation		Percutaneous angioplasty	Pacing		Scans	
			Major	Minor		Permanent	Temporary	M mode	Cross sectional
East Anglia (1 939 600)	8	1	2	5	1	2	8	8	5
Mersey (2 428 100)	10	1	1	3	1	1	9	3	2
Northern (3 093 100)	16	1	1	6	1	1	16	11	7
North East Thames (3 738 400)	16	3	4	9	3	4	16	13	10
North West Thames (3 471 000)	15	4	5	9	3	6	15	8	8
North Western (3 996 700)	19	3	3	11	2	5	17	12	10
Oxford (2 405 400)	8	1	1	5	1	1	7	6	3
South East Thames (3 595 300)	15	4	4	9	4	6	15	10	8
South West Thames (2 953 800)	13	1	2	7	1	2	13	9	5
South Western (3 125 100)	11	1	1	6	1	5	11	7	8
Trent (4 610 600)	12	2	3	7	2	3	10	8	5
Wessex (2 824 400)	10	1	1	4	1	2	10	6	3
West Midlands (5 176 000)	22	3	8	15	1	9	21	16	9
Yorkshire (3 598 900)	17	3	3	8	2	5	14	9	8
Wales (2 807 200)	9*	1	1	7	2	2	17	11	9
National Heart and Chest Hospitals and Great Ormond Street Hospital	5†	4	4	5	4	4	4	4	4
	206 (215)	34 (34)	44 (43)	116 (92)	30	58 (54)	203 (198)	141 (143)	104 (59)

*Wales has nine health districts and 18 district general hospitals.

†The National Heart and Chest Hospitals and Great Ormond Street Hospital do not comprise a region with districts. They are administered separately as independent special health authorities.

contract expiry dates and changing designation of appointees especially for those with honorary contracts. Though 1985 seems in Table 14 to be a particularly unbalanced year (accounting for much of the difference between trained individuals competing for appointments and posts available) the position has been eased by the creation of six new posts since July 1984. Moreover, four (in England and Wales) of the senior registrars in our present survey expressed an intention of practising abroad. The outlook for senior registrars is therefore less bleak than in the recent past. The situation seems satisfactory in Scotland. It remains unfavourable in Northern Ireland and will be eased only if highly trained individuals compete for posts elsewhere in the United Kingdom on equal terms with their peers.

Technical support (Table 17) remains very uneven throughout England and Wales. Oxford and Wessex are again at the bottom of the league table; Oxford has not improved its position at all (approximately one half whole time equivalent physiological measurement technician per 100 000 population) whereas Wessex has shown some modest improvement. Modern cardiology increasingly depends upon technicians—for monitoring of pacemaker patients, for effort testing, for ambulatory monitoring, and for echocardiography as well as for invasive studies. We are disturbed to see a relatively small overall increase (less than 10%) in technical support over a two year period when demand on the service must be increasing considerably. Not all of this presumed shortfall can be accounted for by more automation, though modern technology can potentially absorb an appreciable increase in work-

load for some facilities. Moreover there are now fewer cardiographers, suggesting that more electrocardiograms are taken by staff designated as technicians (a familiar strategy to overcome the inequitably poor pay of cardiographers). Much of the very small true increase must also be in support of new cardiological posts, so expansion is clearly not occurring adequately in a sphere that sorely demands it if reasonable expectations of patients are to be met.

The facilities available in England and Wales appear in Table 18. Comparisons between the 1982 and 1984 surveys can be made by examining the bottom line of Table 18 (1982 figures in parentheses). The apparent loss of one centre undertaking major haemodynamic investigations reflects only a change in designation of one unit carrying out some invasive procedures that do not include coronary angiography. Thirty centres in England and Wales were undertaking percutaneous transluminal angioplasty in 1984 (no 1982 comparison). Four more centres undertook permanent pacing and another 10 temporary pacing. Though the situation has improved, we should remember that immediate access to temporary pacing is a life saving procedure. Yet temporary pacing is still not available at all within 11 health districts (comprising over two million people). Moreover, we can reasonably assume that performance is less than ideal in many of the 50 health districts in England and Wales that undertake temporary pacing yet have no cardiologist. Nor should we be satisfied with constraints upon districts that do have a cardiologist but lack immediate access to image intensification. Asystolic arrest or even severe bradycardia are emergencies in which sec-

Scintigraphy	Invasive electrophysiology	Recording facilities only	Recording facilities and analysis	Stress test (treadmill or bicycle)	Cardiac care units	Monitored beds	Coronary ambulance
3	0	8	4	8	8	6	1
0	1	7	5	9	9	17	1
17	1	16	6	15	21	8	1
16	3	15	14	16	15	37	1
13	4	15	12	13	14	29	0
6	3	17	15	17	19	1	3
5	1	7	7	7	5	27	1
22	5	15	14	15	17	9	3
9	2	13	10	13	11	19	4
18	3	11	9	10	12	16	4
17	2	9	7	10	15	8	2
6	1	10	5	9	10	22	3
20	5	21	14	18	25	4	2
17	2	15	13	15	13	38	2
16	1	16	12	3	12	22	1
11	4	4	4	4	2	12	0
196 (54)	38 (42)	199 (188)	151 (133)	182 (185)	208 (162)	275 (59)	29 (21)

onds and minutes without definitive treatment can determine an unfavourable outcome. The number of centres with facilities for cross sectional echocardiography has nearly doubled since 1982, while cardiac scintigraphy shows an even greater increase. The number of cardiac care units (the definition includes immediate availability of image intensification⁹) has increased from 162 to 208, and the numbers of monitored beds (no image intensification available) has gone up even more steeply—though this may reflect a change in response to a question that was ambiguous in earlier questionnaires. The number of coronary ambulance systems (or resuscitation ambulance systems) has also increased from 21 to 29; a steep rise is to be expected from now onwards because of the changed attitude of Department of Health to this facility.

The United Kingdom still suffers from gross underprovision of cardiological services. We have no access to comprehensive recent European data, but a previous report drew attention to the comparison with most other countries in the European Economic Community that have two to 10 times more cardiologists in relation to their populations.² Our own service should be criticised principally for the inequality of provision within the United Kingdom. We have disparities between our four countries, with 13.3 cardiologists per million population in Northern Ireland, 8.0 per million in Scotland, 5.4 per million in England, and 4.2 per million in Wales (5.82 per million overall). We have even greater inequalities between regions, and especially between districts. Correction of these anomalies, by bringing districts less well endowed into line with districts that are able to provide adequate cardiological cover is a reasonable aim and readily attainable with the

present numbers of trained senior registrars and a modest increase in support facilities.

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